

WHAT IS CLAIMED IS:

Fig 1
Fig 8

1. A call setting method for a network system comprising a first line switching network as a line switching network on a call-out side, a first gateway connected with said first line switching network, an IP packet network connected with said first gateway, a plurality of second gateways respectively connected with said IP packet network, and a second line switching network as a line switching network on a call-in side connected with each of said second gateways, wherein

10\ said first gateway, when a call is set between said first line switching network and said second line switching network through said IP packet network, receives a call setting message from said first line switching network;

10\ said first gateway transmits a call-in enable/disable inquiry message to the IP packet network to specify a second gateway which can communicate the call setting message to the second line switching network;

20\ the call-in enable/disable inquiry message is received by at least one of said second gateways through said IP packet network;

30\ said second gateway from which received the call-in enable/disable inquiry message, if said second gateway itself can communicate a call setting message to said second line switching network, transmits a call-in enable/disable inquiry response message to said first gateway; and

40\ said first gateway selects a second gateway for transmitting the call setting message within at least one of

said second gateways to which transmitted the call-in enable/disable inquiry response message and transmits the call setting message to said selected second gateway.

2. A call setting method for a network system according to claim 1, wherein said first gateway selects a second gateway in which the call-in enable/disable inquiry response message arrived at said first gateway first.

3. A call setting method for a network system according to claim 1, wherein each of said second gateways participates or leaves with respect to a group for receiving call-in enable/disable inquiry message; and

the call-in enable/disable inquiry message is given to a second gateway which have been participating in the group.

4. A call setting method for a network system according to claim 3, wherein each of said second gateways, if said second gateway itself cannot communicate a call setting message transmitted from said first gateway to said second line switching network, leaves from the group.

5. A call setting method for a network system according to claim 3, wherein each of said second gateways, if said second gateway itself can communicate a call setting message transmitted from said first gateway to said second line switching network, participates in the group.

6. A call setting method for a network system according to claim 1, wherein said network system further comprising a third gateway connected with said IP packet network, a third line switching network respectively connected with said third

gateway and said second line switching network;

said first gateway, when cannot receive the call-in enable/disable inquiry response message from all said second gateways, transmits the call setting message to said third gateway;

said third gateway, when receives the call setting message from said first gateway, transmits the call setting message to said third line switching network; and

said third line switching network, when receives the call setting message from said third gateway, transmits the received call setting message to said second line switching network.

7. A call setting method for a network system according to claim 1, wherein said network system further comprising a plurality of third gateways connected with said IP packet network, a third line switching network respectively connected with each of said third gateways and said second line switching network;

said first gateway, when cannot receive the call-in enable/disable inquiry response message from all said second gateways, transmits the call-in enable/disable inquiry message to said IP packet network;

the call-in enable/disable inquiry message is received by at least one of said third gateways through said IP packet network;

said third gateway from which received the call-in enable/disable inquiry message, if said third gateway itself can communicate a call setting message to said third line

switching network, transmits a call-in enable/disable inquiry response message to said first gateway;

said first gateway selects a third gateway for transmitting the call setting message within at least one of said third gateways to which transmitted the call-in enable/disable inquiry response message and transmits the call setting message to said selected third gateway;

said third gateway, when receives the call setting message from said first gateway, transmits the call setting message to said third line switching network; and

said third line switching network, when receives the call setting message from said third gateway, transmits the received call setting message to said second line switching network.

8. A call setting method for a network system according to claim 7, wherein each of said third gateways participates or leaves with respect to a group for receiving call-in enable/disable inquiry message; and

the call-in enable/disable inquiry message is given to a third gateway which have been participating in the group.

9. A call setting method for a network system according to claim 1, wherein the first gateway transmits the call setting message to a specific second gateway in said second gateways through said IP packet network; and

thereafter, when said specific second gateway cannot communicate the call setting message to said second line switching network, said first gateway transmits the call-in enable/disable inquiry message to said IP packet network.

10. A call setting method for a network system according to claim 1, wherein said first gateway, when receives the call setting message from the first line switching network, selects whether to transmit the call setting message to a specific second gateway in said second gateways or transmit the call-in enable/disable inquiry message to the IP packet network.

11. A gateway connecting with a first line switching network as a line switching network on a call-out side, connecting with a plurality of other gateways through a IP packet network, each of the other gateways is connected with a second line switching network as a line switching network on a call-in side, said gateway comprising:

a receiving unit, when a call is set between the first line switching network and the second line switching network, receiving a call setting message from the first line switching network;

a editing unit editing, when the call setting message is received by said receiving unit, a call-in enable/disable inquiry message for inquiring whether a other gateway itself can communicate the call setting message to the second line switching network or not; and

a transmitting unit transmitting the edited call-in enable/disable inquiry message to the IP packet network, the edited call-in enable/disable inquiry message is received by at least one of the plurality of other gateways through the IP packet network.

12. A gateway according to claim 11 further comprising:

a message receiving unit receiving a call-in enable/disable inquiry response message, the call-in enable/disable inquiry message is transmitted by a other gateway from which received the call-in enable/disable inquiry message, when the other gateway can communicate a call setting message to the second line switching network; and

a selecting unit selecting a other gateway for transmitting the call setting message within the other gateways from which received the call-in enable/disable inquiry message, wherein said transmitting unit transmits the call setting message to the selected other gateway.

13. A gateway according to claim 11 further comprising:

a table for holding a multicast address corresponding to a destination of the call setting message; and

a reading unit reading out the multicast address from said table, when said receiving unit receives the call setting message from the first line switching network, wherein

said editing unit edits a IP packet setting the call-in enable/disable inquiry message and the read out multicast address, and

said transmitting unit transmits the edited IP packet to the IP packet network.